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IDEAS FOR DISCUSSION

The Troglodytidae and the Hominidae in the Taxonomy and Evolution of Higher Primates[1]

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The present crisis in current ideas on the evolution of the higher primates (cf. Porshnev 1966) calls for revision of certain postulates and rehabilitation of the Haeckel and Vogt hypothesis (1866–68) of a "missing link" between apes and man. Haeckel and Vogt called this hypothetical form "ape-man" (or "man-ape"), but in accordance with the rules of taxonomy Linnaeus's term *Homo troglodytes* or simply troglodytes should have been used. *H. troglodytes,* according to Linnaeus, is a species characterised among other things by hairiness of the body and absence of speech. In the last hundred years, especially since Dubois's discovery of *Pithecanthropus* bones in Java in 1891–94, a fairly large amount of fossil material, representing many species of extinct bipedal higher primates, has been collected. The generally accepted evolutionary interpretation of this material seems to me incorrect: all these species (except *Australopithecus* and *Meganthropus*) are bracketed with man. Linnaeus and Haeckel and Vogt would have classified them as troglodytes, or ape-men, having affinity to man in morphology, including bipedal locomotion, while lacking the higher cerebral functions which make speech and reason possible. Under the pressure of philosophical concepts, this fruitful idea has been almost totally abandoned in this century. Darwinian evolutionism (and the corresponding view of Engels) has been weakened by the concept of man's direct descent from apes without an intermediary zoological link. Now we can restore this link by embracing in taxonomy all the extinct and living forms belonging to it.

The main criterion for placing fossil forms in the family Hominidae is in practice the presence of accompanying stone implements. Such practice contradicts the purely morphological principle of classification. The creature discovered in Africa that was first named *Pre-Zinjanthropus* and later *Homo habilis* made crude pebble tools but had the brain of an anthropoid. Nonetheless it is considered that the discovery of *Pre-Zinjanthropus* increases the antiquity of hominids ("humans") some 2,000,000 years. At the same time, the contemporary and subsequent morphologically similar Australopithecinae are set apart as a subfamily, for their tool-making is considered doubtful or rudimentary. The geologically contemporary *Meganthropus* and *Gigantopithecus* are not included in the Hominidae at all, because they undoubtedly made no tools.

Bunak (1966:536) interprets Paleolithic stone implements as "exosomatic organs." Their production was to a high degree a stereotyped and automatic function: only slight changes of the prevailing pattern occur over a period of about 1,000 generations in the Lower Paleolithic and over a period of about 200 generations (taking a generation as 30 years) in the Middle Paleolithic; such ethological changes lie quite beyond the level of consciousness. The psychotechnical analysis of Paleolithic tools shows that the process of their production did not involve speech, but was sustained by automatic imitation within populations. Modern neurophysiology and neuropsychology have found it possible to locate in the brain the areas of speech control and its bearing on behavior in that destruction of certain fields and zones in the frontal, temporal, and sincipital regions of the cortex renders the above-mentioned functions in one respect or another impossible; and these particular fields and zones are developed only in *H. sapiens* (Shevchenko 1971). The comparison of the data of the morphological evolution of the brain of fossil hominids and the study of aphasia excludes the possibility of articulate speech in the pre-*H. sapiens* stages of evolution, and the concept of inarticulate speech is rejected by psycholinguistics as senseless.

Hence, it is advisable to abandon the current practice of including all bipedal higher primate fossils in the Hominidae. It is preferable to include in this family just one genus, *Homo,* represented by a single species, *H. sapiens* (subdivided into *H. sapiens fossilis* and *H. sapiens recens*). The main diagnostic distinction of the Hominidae is the presence of those formations in the structure of the brain which make speech possible and the correlative features in the organs of speech and in the face (Porshnev 1971). All the other bipedal higher primates should be embraced by the family Troglodytidae (or Pithecanthropidae), whether they made tools or not. Their main diagnostic distinction from the family Pongidae is bipedal (erect, orthograde) locomotion, with all the correlative features in the structure of the body, head, limbs, and internal organs. The Troglodytidae (or Pithecanthropidae) may be subdivided into the following genera: (1) *Australopithecus,* (2) *Meganthropus,* (3) *Pithecanthropus* (*Archanthropus*), (4) *Troglodytes* (*Paleanthropus*), subdivided into *Troglodytes fossilis* and *Troglodytes recens.* This fourth genus (commonly known as the Neanderthal) can in its turn be divided into the following species: (*a*) Southern (Rhodesian type), (*b*) Classical (La Chapelle type), (*c*) Presapient (Steinheim-Ehringsdorf type), (*d*) Transitory (Palestine type).

The family Pongidae branched off the Primate tree in the Miocene. Currently it is represented by four genera: the gibbons (sometimes separated as a distinct family), the orangutans, the gorillas, and the chimpanzees. The family Troglodytidae diverged from the anthropoid line in the Pliocene. At present it is represented by one genus, probably one species (*Troglodytes recens* L.sp.?), which can be described as "relic hominoid" (Porshnev 1963, 1969). From the hominoid line (Troglodytidae) in the Upper Pleistocene there separated a family of hominids in which the tendency towards the formation of species did not prevail and which from the very start and up to the present has been represented by the species *H. sapiens.* The taxonomic rank of family for *H. sapiens* is justified by the great biological significance of such new formations as the organs and functions of speech, i.e., the second signal system, The

[1] This paper first appeared, in slightly different form and in Russian, in *Doklady Akademii Nauk SSSR* 188(1).

[The above Idea was sent to the same scholars who were invited to comment on the papers of Butzer, Tuttle, Todd, and Blumenberg in this issue. The responses are printed after the text. B. F. Porshnev died while his article was in press; his colleagues Dmitri Bayanov and Igor Bourtsev of the Darwin Museum agreed to reply to the comments, and their remarks appear below.—EDITOR.]

unusually fast tempo of this evolutionary progress (naturally, on the basis of useful variations of ancestral forms, i.e., late *Paleanthropus*) indicates a mechanism of selection somewhat akin to artificial selection. In this comparatively speedy divergence the two species were juxtaposed in such a way that connecting links were washed away. This process was intimately connected with the genesis of the second signal system (Porshnev 1968*a*). The question is open now which species of *Paleanthropus* (*Troglodytes fossilis*) was the direct ancestor of *H. sapiens fossilis*. Perhaps we shall know this when study of the relic *Paleanthropus* yields serial morphological material, for there can be no doubt that the *Troglodytes recens* L. is a direct left-over of the divergence of the Troglodytidae and the Hominidae. Therefore study of these relics becomes a cardinal objective for the theory of anthropogenesis (Porshnev 1966*b*).

The thesis that all *Paleanthropus* forms died out or were assimilated almost immediately (not more than 3,000 years) after the appearance of *H. sapiens* is totally a priori and biologically absurd. Neanderthaloid skeletons found in the more recent strata of the earth, including some of the various periods of historic time, are looked upon as "pseudo-Neanderthal." The argument here is based on the absence of Mousterian tools, though this can be explained by the above-mentioned divergence resulting in the disappearance of the transitional forms and in the new ecology of relic *Paleanthropus*. Archeological and historical evidence shows the latter's coexistence with man, sometimes in symbiotic relationship, sometimes in parasitic relationship with various species of the Carnivora and the Herbivora, and, lastly, in more recent time, subsisting vicariously in the most deserted but ecologically varied biotopes.

The highest possible degree of negative adaptiveness of relic *Paleanthropus* to man, on the one hand, and its great outward likeness to man, on the other, jeopardize its study and explain why primatology and anthropology have fallen so far behind on this problem. It is precisely the use of nontraditional methods, such as the comparative analysis of mutually independent evidence, that has made it possible to establish the existence of this relic species and to describe its morphology, biogeography, ecology, and behavior. In other words, fact-finding methods have been used in biology that are usually employed by historians, jurists, and sociologists. This indirect research into the problem of relic *Paleanthropus* is now considerably advanced. Yet the road traveled so far can only be described as the initial (though perhaps the hardest) stage of research. The way is not yet clear for the next step—the planned acquisition of a specimen, living or dead. The state of research on the problem allows one to think it is high time certain postulates in primatology and anthropology were rewritten.

Comments

by EMILLIANO AGUIRRE DE ENRÍQUEZ

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Before discussing the central ideas of this paper, I would point out several inexactitudes in its assumptions.

I do not think it is proper to say that "the presence of accompanying stone implements" has been "in practice" the main criterion for placing fossil forms in the Hominidae. Quite a number of authors classify *Australopithecus* in this family, but not many of them attribute to him the making of stone artefacts. "*Meganthropus*" is also normally included in the human family; but the reason for not including *Gigantopithecus* is, I think, its probable phylogenetic relationship with *Pongo* and the dryopithecines from the Miocene of Asia.

Porshnev estimates a 1,000-generation (of 30 years) duration for the Lower Paleolithic. If we take into account the fact of more than 2,000,000 B.P. as a minimum age for the Oldowan industry and that of Lake Rudolf and the fact that the Middle Paleolithic is considered to begin with the lithic techniques of the Riss, not more than 200,000 years ago, this makes more than 60,000 generations; on the other hand, the Middle Paleolithic is considered to have lasted until less than 40,000 years ago, more than 5,000 generations and not 200.

We cannot underestimate the technical progress, and doubtless the concomitant social and linguistic differentiation, of the Middle Paleolithic, generally associated with Neanderthal man; the brain size of this fossil race forbids its exclusion from either the hominids or the genus *Homo* and the human species.

The author at first seems to exclude ethological criteria from taxonomy, but throughout the paper defines the "Hominidae" and discriminates the "Troglodytidae" on cultural and psycholinguistic criteria. The morphological differences supposedly indicative of progress into conceptual language are insufficient for a classification and zoological diagnosis at the family and even at the generic level.

We cannot exclude, either from the human family or from the genus *Homo*, the pithecanthropines, which probably interbred with *H. sapiens* (maybe in the population of Omo I and II; see Day 1969, Thoma 1966). Kochetkova (1970) claims for *H. erectus* a relevant development in the language areas of the brain, and we may think that it had a remarkable capacity for abstraction and organization (Aguirre 1966).

The cultural progress of modern man has been faster in recent times, but its continuity has been unbroken in the process—slow at first, for lack of experience, but later increasing exponentially. A clear break cannot be introduced as the author does, except a priori and on the basis of criteria quite foreign to biological science, through the use of which we risk going back centuries to the time before the advent of positive science.

Let us look for a specimen, alive or dead, of an infra-man, but let us not classify it before we find it, or prepare a taxonomic trap for it to justify an arbitrary speculation—or we will have returned to the old racism of the "encomenderos" against which Las Casas, Vieira, Acosta, and Pope Paul IV defended the human nature and human rights of the American Indians.

by BENNETT BLUMENBERG

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Recent studies conducted with *Pan* have shown that this ape possesses the ability to learn the language Yerkish via a computer-controlled training system (Rumbaugh, Gill, and Von Glaserfeld 1973). Chimpanzees have also been taught to use plastic objects as words and thereby acquire a vocabulary of over 100 words as well as the concepts of class and sentence structure (Premack and Premack 1972). It has long been known that chimpanzees do not possess a larynx which would allow them to speak either Russian, Chinese, or English. In any case, due to the wealth of data which strongly and indubitably suggests that (*a*) silence is golden and (*b*) most *Homo* vocalize in excess, it should now be obvious to everyone that *Pan* should really be sunk in the genus *Homo* and that the creature (or hominoid) previously so designated is but a regional hairy variant which merely indicates the polygenetic variability contained within the human race.